OWNER/APPLICANT

OLD MILL DEVELOPMENT TRUST
6 PROCTOR STREET
ACTON, MA 01720

MAP J-3 PARCEL 59

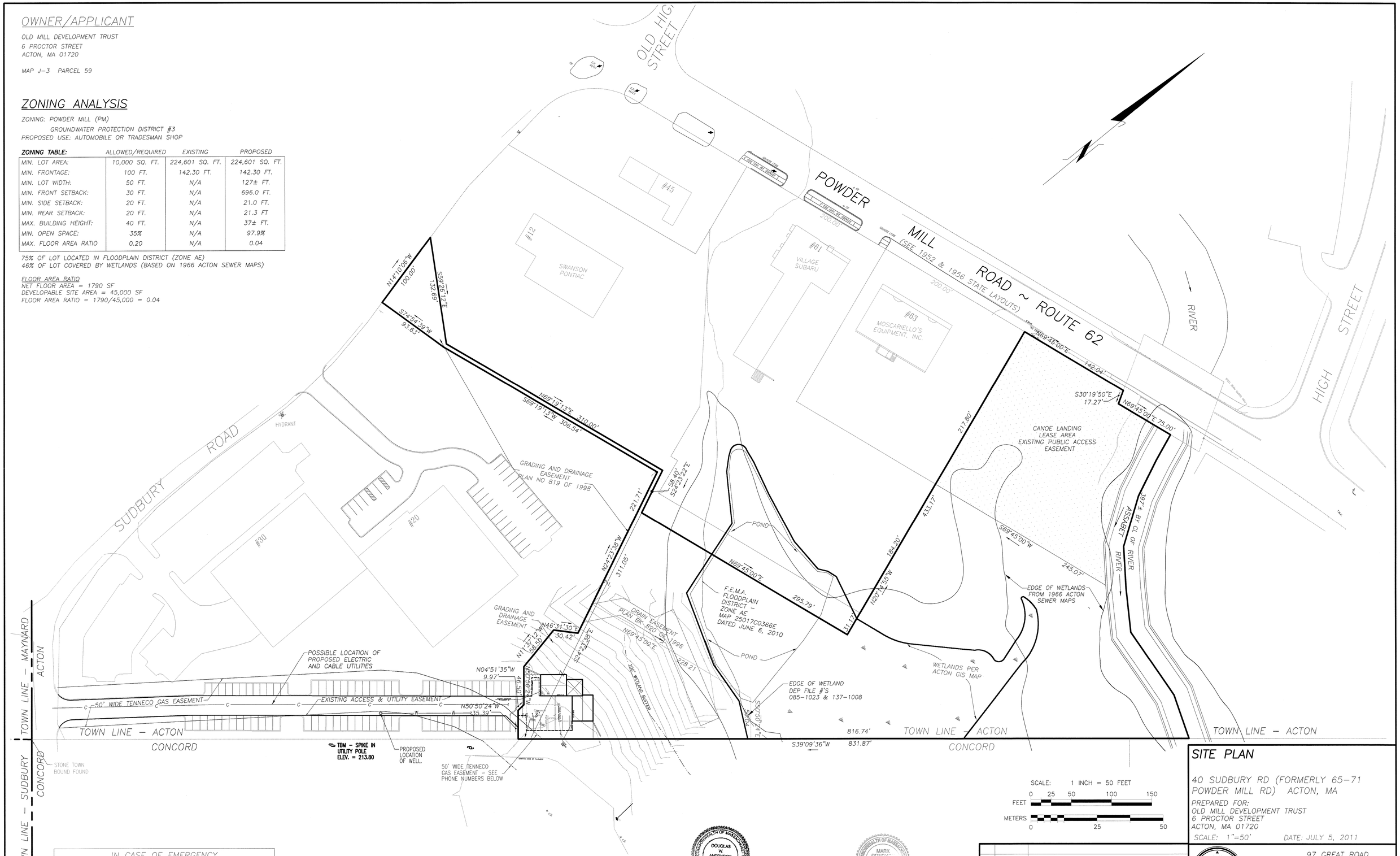
ZONING ANALYSIS

ZONING: POWDER MILL (PM)
GROUNDWATER PROTECTION DISTRICT #3
PROPOSED USE: AUTOMOBILE OR TRADESMAN SHOP

ZONING TABLE:	ALLOWED/REQUIRED	EXISTING	PROPOSED
MIN. LOT AREA:	10,000 SQ. FT.	224,601 SQ. FT.	224,601 SQ. FT.
MIN. FRONTAGE:	100 FT.	142.30 FT.	142.30 FT.
MIN. LOT WIDTH:	50 FT.	N/A	127± FT.
MIN. FRONT SETBACK:	30 FT.	N/A	696.0 FT.
MIN. SIDE SETBACK:	20 FT.	N/A	21.0 FT.
MIN. REAR SETBACK:	20 FT.	N/A	21.3 FT
MAX. BUILDING HEIGHT:	40 FT.	N/A	37± FT.
MIN. OPEN SPACE:	35%	N/A	97.9%
MAX. FLOOR AREA RATIO	0.20	N/A	0.04

75% OF LOT LOCATED IN FLOODPLAIN DISTRICT (ZONE AE)
46% OF LOT COVERED BY WETLANDS (BASED ON 1966 ACTON SEWER MAPS)

FLOOR AREA RATIO
NET FLOOR AREA = 1790 SF
DEVELOPABLE SITE AREA = 45,000 SF
FLOOR AREA RATIO = 1790/45,000 = 0.04



IN CASE OF EMERGENCY

Contact the Tennessee Gas Pipeline Company Dispatching Office in Hockley, Texas at the numbers listed below. The dispatcher is on duty 24 hours a day.

Dispatching Office: (800) 231-2800 or (936) 372-2893

SCALE: 1 INCH = 50 FEET

FEET 0 25 50 100 150
METERS 0 25 50

DOUGLAS W. ANDRYSICK #34508 REGISTERED PROFESSIONAL LAND SURVEYOR
COMMONWEALTH OF MASSACHUSETTS

Douglas W. Andrysick 11/16/11

MARK DONOVAN No. REGISTERED PROFESSIONAL ENGINEER
COMMONWEALTH OF MASSACHUSETTS

11/16/11

No.	DATE	DESCRIPTION
1	11/16/11	ENGINEERING DEPARTMENT COMMENTS

REVISIONS

SITE PLAN

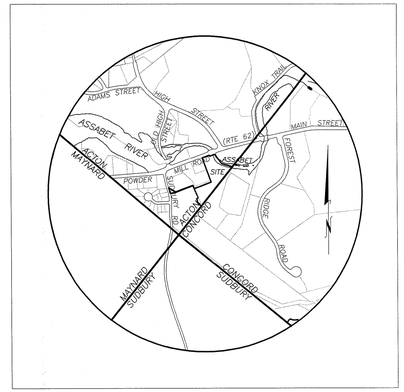
40 SUDBURY RD (FORMERLY 65-71 POWDER MILL RD) ACTON, MA

PREPARED FOR:
OLD MILL DEVELOPMENT TRUST
6 PROCTOR STREET
ACTON, MA 01720

SCALE: 1"=50' DATE: JULY 5, 2011

Acton Survey & Engineering, Inc.
Since 1967
97 GREAT ROAD
P.O. BOX 666
ACTON, MA 01720
PH. (978) 263-3666
FAX (978) 635-0218

6055 B26-1/5



LOCUS PLAN

1" = 1200 FT

PARKING CALCULATIONS

USE: VEHICLE REPAIR/BODY SHOP

SPACES REQUIRED: 2 SPACES PLUS 3 SPACES PER SERVICE BAY (6.3.1.15)
(4 SERVICE BAYS x 3) + 2 = 14 SPACES

MINIMUM NUMBER OF SPACES MAY BE 70% OF NUMBER REQUIRED BY 6.3.1.15 IN POWDER MILL DISTRICT (6.9.6.3).

0.70 x 14 = 10 SPACES REQUIRED

SPACES PROVIDED: 7 EXTERIOR SPACES + 4 SERVICE BAYS = 11 SPACES

EXTERIOR LIGHTING CALCULATIONS & NOTES

All lights shall be located in the soffits above the first floor and on the front of the building, and shall be fully shield to cast light downward.

Lights shall be evenly spaced, with lights situated near the man door to provide adequate lighting at that door and to provide an even distribution of light across the face of the building. A minimum of ten lights shall be installed.

Lights shall cast a white light, shall be manually operated, and shall be turned off when the building is not occupied.

MAXIMUM WATTAGE ALLOWED

Parking lot and 5 foot area around perimeter: 3100 SF x 0.1 Watt/SF = 310 Watts

Doorways: 4 x 10' = 40' + 3' (man door) = 43' x 13 Watts/LF of doors = 559 Watts

Total wattage allowed: 869 Watts

USE: 10 soffit lights with 75 Watt bulbs = 750 Watts proposed

NOTE:
ELEVATIONS REFER TO NGVD 1929.
2 BENCHMARKS SHALL BE ESTABLISHED AFTER AFTER CLEARING AND INITIAL SITE GRADING HAVE BEEN PERFORMED.
STARTING BENCHMARK: FIRM RM 1

COMMONWEALTH OF MASSACHUSETTS MARK DONOHO REGISTERED PROFESSIONAL ENGINEER 11/16/11

No.	DATE	DESCRIPTION
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DETAIL SITE PLAN

40 SUDBURY RD (FORMERLY 65-71 POWDER MILL RD) ACTON, MA

PREPARED FOR:
OLD MILL DEVELOPMENT TRUST
6 PROCTOR STREET
ACTON, MA 01720

SCALE: 1"=10' DATE: JULY 5, 2011

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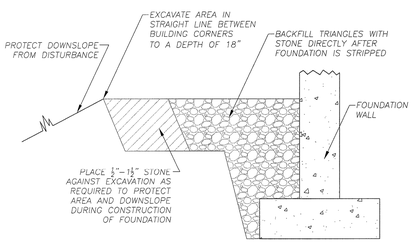
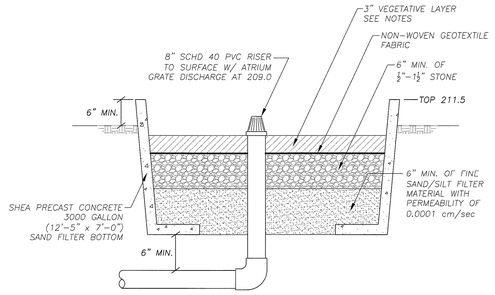


ABSORBENT TRIANGLE DETAIL

N.T.S.

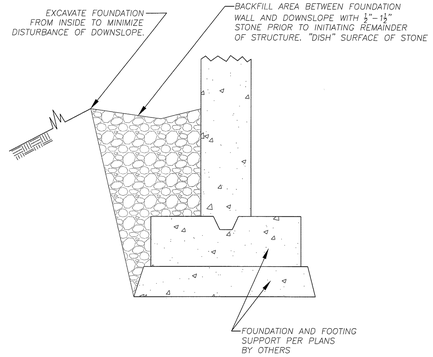


SAND FILTER DETAIL

N.T.S.

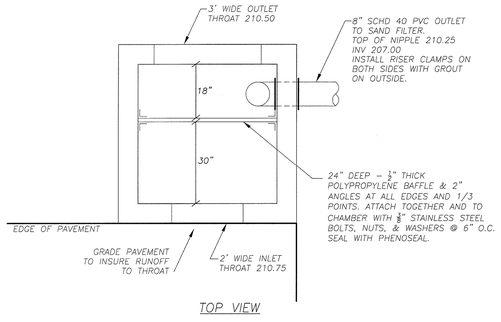
VEGETATED LAYER NOTES

1. SAND FILTER SHALL BE INSTALLED TO ALLOW GROWTH OF VEGETATION TO OCCUR PRIOR TO THE SAND FILTER RECEIVING RUNOFF.
2. SOIL SHALL CONSIST OF 3 INCHES OF TWO PARTS SANDY LOAM TOPSOIL MIXED WITH ONE PART SAND.
3. SOIL SHALL BE MOISTENED [NOT SATURATED] AND THE TOP INCH LIGHTLY RAKED JUST PRIOR TO SEEDING.
4. THE AREA SHALL BE SEEDED WITH A MIXTURE OF NATIVE GRASSES SUITABLE TO BE INUNDATED FOR SHORT PERIODS OF TIME – NE EROSION CONTROL/RESTORATION MIX [NEWP.COM].
5. SEED SHOULD BE LIGHTLY COVERED BY HAND RAKING AND IRRIGATED AS REQUIRED TO CAUSE GERMINATION AND ESTABLISHMENT OF VEGETATION OVER THE ENTIRE SURFACE.

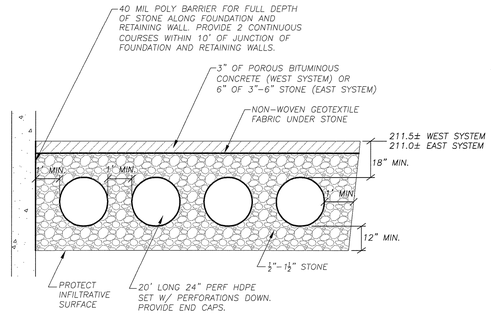


FOUNDATION BACKFILL DETAIL

N.T.S.

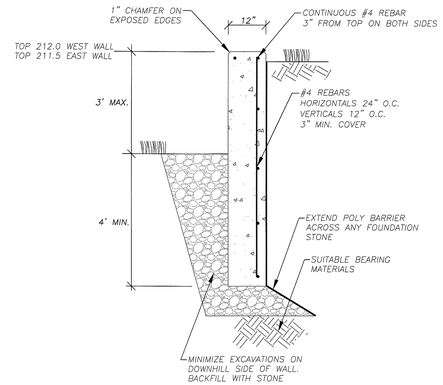


TOP VIEW



STORAGE/RECHARGE SYSTEMS DETAIL

N.T.S.

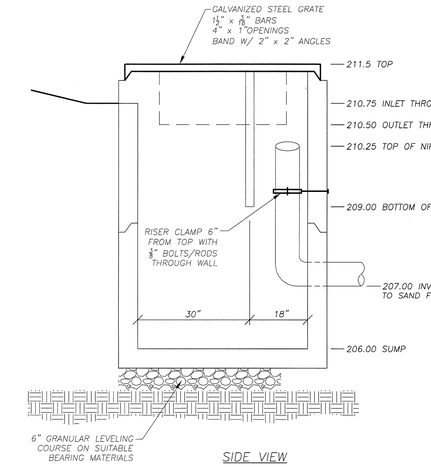


NOTES:

1. CONCRETE TO BE 4000 PSI @ 28 DAYS WITH 4% AIR ENTRAINMENT.
2. ALL REBAR TO HAVE 3" COVER AND BE SPLICED 12" MIN.
3. SHOP DRAWINGS OF ALL JOINTS TO BE SUBMITTED TO ENGINEER FOR APPROVAL.
4. ENGINEER TO OBSERVE EXCAVATION, FORMS, AND REBAR PRIOR TO POURING OF CONCRETE.

RETAINING WALL DETAIL

N.T.S.



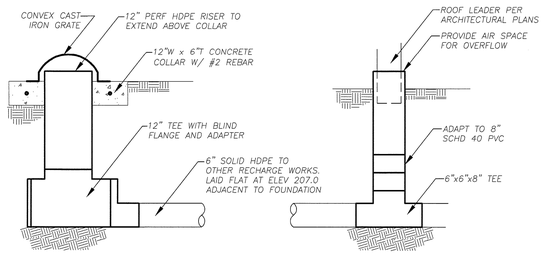
SIDE VIEW

INLET BOX DETAILS

N.T.S.

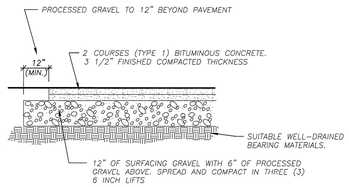
INLET BOX NOTES

1. STRUCTURE SHALL BE A PRECAST CONCRETE STRUCTURE SUITABLE FOR HS–20 LOADS AND SHALL BE MADE BY A MANUFACTURER WITH A MINIMUM OF TEN YEARS EXPERIENCE IN THE FABRICATION OF SUCH STRUCTURES.
2. JOINTS SHALL BE MADE WATERTIGHT AS RECOMMENDED BY THE MANUFACTURER
3. PIPE OPENING SHALL BE CAST BY MANUFACTURER OR CORED [NOT CHIPPED], AND SEALED WITH NON–SHRINK GROUT. PUSH GROUT INTO ANNULAR SPACE AROUND PIPE AND FORM 2–INCH THICK RING 2 INCHES BEYOND OPENING ON OUTSIDE.
4. SEAL ROAD BOLT OPENINGS AS SPECIFIED ABOVE.
5. ALL ELEMENTS OF THE POLYPROPYLENE BAFFLE SHALL BE SECURELY ATTACHED AND THE ENTIRE BAFFLE MADE WATERTIGHT BE APPLYING A SUITABLE CAULKING MATERIAL, SUCH AS PHENOSEAL, AND TIGHTENING BOLTS TO EXTRUDE CAULKING FOR FULL LENGTH AND DEPTH OF JOINT.



STORAGE/RECHARGE SYSTEM MONITORING & CONNECTION DETAIL

N.T.S.

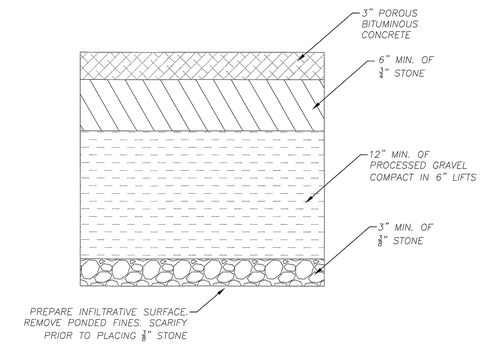


NOTES:

1. ALL MATERAILS AND WORKMANSHIP SHALL CONFORM TO THE MASS. HIGHWAY DEPARTMENT SPECIFICATIONS AND REGULATIONS, UNLESS APPROVED OTHERWISE, IN WRITING BY THE PROJECT ENGINEER.
2. PAVEMENT SHALL BE CLASS 1 BITUMINOUS CONCRETE LAID IN 2 COURSES TO A FINISHED DEPTH OF 3 1/2" FOR DRIVEWAY (2" MIN. BINDER WITH 1 1/2" MIN. WEARING COURSE ABOVE).
3. GRAVEL SUBBASE SHALL CONTAIN NO STONES GREATER THAN 3" AND BE INSTALLED TO A MIN. DEPTH OF 9" FOR DRIVEWAY AND 6" FOR SIDEWALK. REMOVE ALL ORGANIC SILTS & UNSUITABLE MATERIALS BENEATH.

BITUMINOUS CONCRETE PAVEMENT DETAIL

N.T.S.



POROUS PAVEMENT DETAIL

N.T.S.

BITUMINOUS CONCRETE MIX

5.75 TO 6.0% ASPHALT BINDER BY WEIGHT

U.S. STANDARD SIEVE SIZE	PERCENT PASSING
1/2	100
3/8	95
#4	35
#8	15
#16	10
#20	2

MARK DONOHOE CIVIL No. 27148 REGISTERED PROFESSIONAL ENGINEER COMMONWEALTH OF MASSACHUSETTS

11/11/11

No.	DATE	DESCRIPTION
1	9/20/11	ENGINEERING DEPARTMENT COMMENTS

REVISIONS

SITE DETAILS

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PREPARED FOR:
OLD MILL DEVELOPMENT TRUST
6 PROCTOR STREET
ACTON, MA 01720

SCALE: AS NOTED DATE: JULY 5, 2011

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6055 B26–3/5

GENERAL NOTES:

1. Plans were prepared for named client and project. Reproduction in whole, in part or by adaptation for other purposes is expressly prohibited.
2. Drawings shall not be scaled. If clarification of intent is REQUIRED, contractor shall obtain prompt clarification prior to continuing work.
3. Contractor shall visit site prior to initiation of work and shall notify ACTON SURVEY & ENGINEERING, INC. and owner of any discrepancies with site conditions, or proposed construction, on date discovered.
4. Contractor shall be responsible for coordinating proposed construction with existing conditions.
5. Contractor shall notify Dig–Safe [1–888–344–7233] and verify all underground utilities prior to construction.
6. Contractor shall be responsible for obtaining all necessary permits and licenses.
7. All work shall conform to all local and state regulatory agencies and utility company requirements.
8. Upon entering the site, the contractor shall become responsible for all erosion control, dewatering and shall undertake all measures to protect wetlands, the drainage system and streets from siltation and dust.

   The contractor is responsible for immediately removing any sand, dirt, or debris that erodes onto abutting property or into any existing drainage system, including catch basin sumps, pipes, manholes, and ditches.
9. Contractor shall be responsible for repairing any damage caused to roads, walks, utilities, site improvements [existing or proposed] both inside and outside the limit of work if damage due to work directly associated with this project.
10. Existing utilities shall be maintained in service as required by the use of site and adjacent properties. Relocate utility lines as required.
11. The drainage system shall be maintained and functional during construction and all catch basins, manholes & pipes shall be cleaned after the completion of the project.
12. The "site plan" is based on topographic survey showing all visually apparent features of the site on the date(s) that surface explorations and topography were completed.
13. No attempt was made, in preparing the plans, to ascertain the location of non–visually apparent subsurface utilities and structures, or conditions.
14. The limit of work shall be as designated and / or the edge of the proposed grading and / or the property lines, if not indicated.
15. Materials imported to the site shall be free of hazardous waste and noxious materials, stored as designated and shall not hamper the site activities.
16. Materials exported from the site shall become the property of the contractor and be disposed of in a legal manner.
17. All existing and new utility structures shall be adjusted to finished grades. Setting of rims temporarily at binder course may be required.
18. All water mains, water services and force mains shall have a five (5') foot minimum cover.
19. All pavements shall be cut to a vertical face outside limits of prior disturbance and prior to installing adjacent new pavements. All new pavements shall be installed in a manner that is uniform, with watertight joints resulting.
20. The project shall be complete when the site is found to be litter/debris free, erosion resistant, all erosion barriers are removed and pavements, catch basins, manholes and pipes are clean.
21. The contractor shall clearly mark the limits of work in the field prior to the the start of construction.
22. Hauling of earth to or from the site shall be done between the hours of 9:00 a.m. and 4:00 p.m. on weekdays only.
23. Any alterations within 100 feet of a wetland [200 feet of a stream] shall require a filing with the Conservation Commission. Dewatering shall be controlled as to not impact wetland resource areas.

SITE NOTE

PROPERTY LINES WITHIN 25 FEET OF CONSTRUCTION ACTIVITIES MUST BE STAKED BY A PROFESSIONAL LAND SURVEYOR.

STORMWATER MANAGEMENT SYSTEM OPERATION AND MAINTENACE

GENERAL

It is important that the surface of the parking lot be kept free of litter – including landscape litter such as leaves and sand. This will decrease the need to maintain the stormwater management system and decrease the potential need for replacing the system.

Absorbent materials, such as "speedi–dry," and absorbent sausages, or booms, shall be kept in a visually apparent place that can be easily accessed by all persons working at the facility.

As described in the section pertaining to the inlet box, a 3–foot long 2x6 shall also be kept with the absorbent materials to aid in the closure of the inlet box throat in case of a "spill" incident.

DESCRIPTION OF SYSTEM

Stormwater runoff from the roof is collected by the roof gutters and by the crushed stone surfaces at the sides of the building.

The parking lot includes sections of porous pavement which will allow for direct recharge of runoff. The area under vehicle engines and over the leach field is paved with standard bituminous concrete.

Excess runoff from the parking lot is first collected by the open throat of the concrete inlet box structure at its eastern corner. The structure contains a baffle to retain floating materials, such as petroleum products, to allow for their evaporation or removal if excessive amounts are detected.

The structure also has two outlets set at different elevations so that "first flush" of runoff flows to the sand filter [the open concrete structure] located to the east of the inlet box. The sand filter has an open bottom with a soil mixture that will allow it to drain slowly and increase the potential for evaporation of volatile materials.

Runoff in excess of that caused by one inch of rainfall exits the higher outlet of the inlet box and flows to the crushed stone recharge area. The two crushed stone recharge areas are connected by a 4 inch pipe installed along the building.

The inlet box also has a four foot sump to remove sand and other materials by settling.

MAINTENANCE OF POROUS PAVEMENT

All surfaces of the parking lot should be maintained clean at all times, and given the site's exposure to sunlight, sand should not be required to be utilized for traction during the winter.

Gross materials from all paved surfaces shall be removed as soon as they are observed.

The parking lot shall be vacuum swept in late spring or early summer and more often if required.

If stormwater is found to runoff the porous pavement after it is swept, replacement of the pavement may be required.

INLET BOX

A dipstick can be extended through the open grate of the inlet box, and if the depth of water is found to be 3 feet or less, then sediment has accumulated to a depth of at least one foot. When this occurs the structure shall be cleaned by a licensed person.

When the dipstick is removed its surface shall be observed for signs of oil or other petroleum products. If any products are observed the structure should be pumped.

If any odors are detected emanating from or in the vicinity of the structure, their source shall be investigated and abatement and removal procedures shall be undertaken.

If a "spill" should occur in the area tributary to the inlet box, the throat can be closed by placing a 3–foot long 2" x 6" plank across it. The plank should be supplemented by the placement of absorbent sausages or other suitable absorbent materials to seal the bottom and edges of the plank.

SAND FILTER

The sand filter is to retain runoff for a period of up to 3 days. If water is ponded in the filter for periods greater than 3 days, the soil on the top or the bottom of the filter has probably become clogged and must be replaced.

To determine which layer is subject to clogging, the inlet water level should be observed. If the level is 3 inches or more below the level of the top of the filter surface, the top 3–inch deep vegetated layer is probably clogged and may have to be removed and replaced. If the inlet water level is filled to the surface, the bottom layer is probably clogged and will require replacement.

Care shall be taken to not tear or penetrate the filter fabric separating the vegetated layer from the underlying stone layer. The filter fabric shall be replaced if its integrity is compromised.

The bottom layer shall only be removed after consultation with the design engineer.

If odors are emanating from the sand filter their source shall be determined and abated.

If petroleum products are found coating the surface of the rocks in the filter, they shall be removed and disposed of by licensed persons.

ROOF GUTTERS – DOWNSPOUTS – COLLECTION SYSTEM

The roof gutters and downspouts shall be maintained in working order. It is important that roof runoff is contained and not allowed to cause erosion or ice formation. Either could result in severe damage to the site.

The downspouts discharge either to the crushed stone or to a pipe that extends along the front of the building and connects the two crushed stone recharge systems.

The vertical below–ground pipes have been oversized to allow them to overflow onto the pavement. If overflow occurs the pipe maybe plugged, and the location of the overflow may allow the location of the blockage to be determined.

STORMWATER MANAGEMENT SYSTEM OPERATION AND MAINTENACE (cont.)

Crushed stone has been placed as foundation backfill along the rear of the building and in the triangular spaces at the rear of the tower. These areas are for redundancy and should not be relied upon to correct deficiencies in the roof gutter/downspout systems. However, these areas shall be kept litter–free and in a stable condition at all times.

CRUSHED STONE RECHARGE AREAS

The crushed stone recharge areas at the sides of the building shall be kept litter–free at all times and shall not be driven on. Each area contains buried perforated pipes to increase their storage volume.

The crushed stone area on the west side end extends under the pavement, and this section of pavement can be driven on.

Overflows from the crushed stone areas shall never occur, and if an overflow does occur, remedial measures shall be undertaken promptly to prohibit a second occurrence.

The vegetated slopes at the rear of the building could be subject to rapid and serious erosion.

The grated structures in each recharge area are at the ends of the pipe connecting them, and allow for the visual monitoring of the water levels in the recharge systems. If the systems do not drain in a period of less than a day, their capacity to recharge has become impaired and their replacement should be planned so that overflows do not occur.

EROSION CONTROL

A rapid, well ordered construction program shall be the primary erosion control method utilized at this site.

Runoff shall not be allowed to concentrate and runoff from the existing parking lot shall not be allowed to enter the site. Sand bags filled to 60 percent capacity could be placed across the end of the existing pavement in a manner to divert runoff to a stable area of vegetation. The sand bags could also serve as a device to remove materials from vehicle tires.

The site shall be maintained litter–free and materials shall be stored in a manner that will not concentrate runoff.

The site shall be "back graded" so that runoff from the area of disturbance does not flow out of the area and down the wooded slope.

If ponding occurs, any deposits of fine sand/silt that accumulate shall be removed prior to the placement of foundation materials [processed gravel, crushed stone] or the recharge facilities.

Temporary construction fences or silt fences may be utilized to control construction and limit areas of disturbances.

The contractor is responsible for immediately removing any sand, dirt, or debris that erodes onto abutting property or into any existing drainage system, including catch basin sumps, pipes, manholes, and ditches.

Care must be taken during construction to control runoff and insure that runoff does not become concentrated and discharge to the slope at the rear of the building where severe erosion could occur.

The contractor might delay the pouring of the garage floor slabs so that runoff can be diverted inside or through the building and away from the steep slopes. Of special concern is the period when the roof deck has been installed and the gutters are not in place to carry runoff away from the steep slopes.

It is important that the rear foundation wall be backfilled with stone, as detailed on the plans, and the absorbent triangles be installed as soon as possible. Installation should occur directly after forms are removed.

COMMONWEALTH OF MASSACHUSETTS
MARK DONOHOE
CIVIL
No. 27148
REGISTERED
PROFESSIONAL ENGINEER

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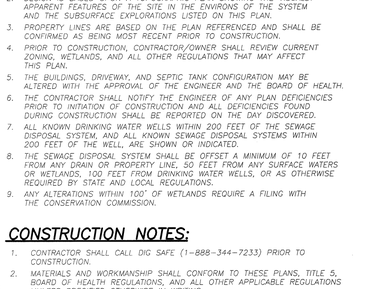
6055 B26–4/5

GENERAL NOTES:

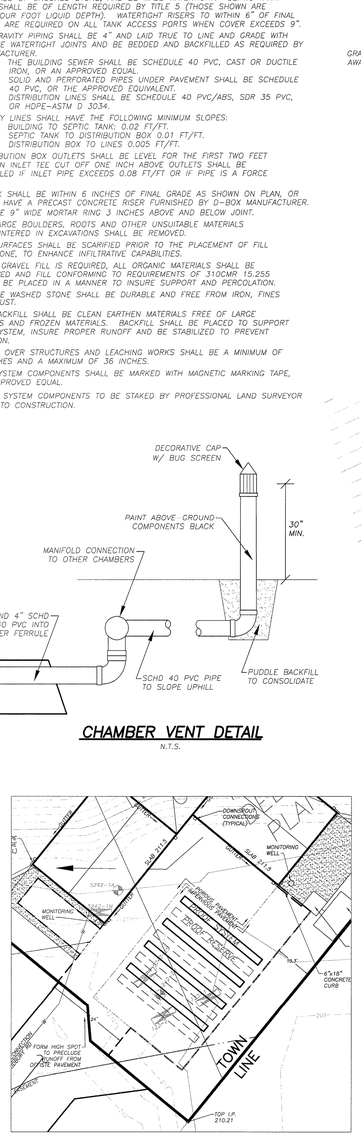
1. PLAN WAS PREPARED FOR NAMED CLIENT TO SHOW THE DESIGN OF THE SUBSURFACE SEWAGE DISPOSAL SYSTEM IN ACCORDANCE WITH TITLE 5 AND ANY MORE RESTRICTIVE REGULATIONS OF THE BOARD OF HEALTH.
2. DESIGN IS BASED UPON A TOPOGRAPHIC PLAN SHOWING THE VISUALLY APPARENT FEATURES OF THE SITE IN THE ENVIRONS OF THE SYSTEM AND THE SUBSURFACE EXPLORATIONS LISTED ON THIS PLAN.
3. PROPERTY LINES ARE BASED ON THE PLAN REFERENCED AND SHALL BE CONFIRMED AS BEING MOST RECENT PRIOR TO CONSTRUCTION.
4. PRIOR TO CONSTRUCTION, CONTRACTOR/OWNER SHALL REVIEW CURRENT ZONING, WETLANDS, AND ALL OTHER REGULATIONS THAT MAY AFFECT THIS PLAN.
5. THE BUILDINGS, DRIVEWAY, AND SEPTIC TANK CONFIGURATION MAY BE ALTERED WITH THE APPROVAL OF THE ENGINEER AND THE BOARD OF HEALTH.
6. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY PLAN DEFICIENCIES PRIOR TO INITIATION OF CONSTRUCTION AND ALL DEFICIENCIES FOUND DURING CONSTRUCTION SHALL BE REPORTED ON THE DAY DISCOVERED.
7. ALL KNOWN DRINKING WATER WELLS WITHIN 200 FEET OF THE SEWAGE DISPOSAL SYSTEM, AND ALL KNOWN SEWAGE DISPOSAL SYSTEMS WITHIN 200 FEET OF THE WELL, ARE SHOWN OR INDICATED.
8. THE SEWAGE DISPOSAL SYSTEM SHALL BE OFFSET A MINIMUM OF 10 FEET FROM ANY DRAIN OR PROPERTY LINE, 50 FEET FROM ANY SURFACE WATERS OR WETLANDS, 100 FEET FROM DRINKING WATER WELLS, OR AS OTHERWISE REQUIRED BY STATE AND LOCAL REGULATIONS.
9. ANY ALTERATIONS WITHIN 100' OF WETLANDS REQUIRE A FILING WITH THE CONSERVATION COMMISSION.

CONSTRUCTION NOTES:

1. CONTRACTOR SHALL CALL DIG SAFE (1-888-344-7233) PRIOR TO CONSTRUCTION.
2. MATERIALS AND WORKMANSHIP SHALL CONFORM TO THESE PLANS, TITLE 5, BOARD OF HEALTH REGULATIONS, AND ALL OTHER APPLICABLE REGULATIONS UNLESS SPECIFIED OTHERWISE IN WRITING.
3. STRUCTURES, PIPE, STONE AND FILL SHALL BE INSTALLED ON SUITABLE BEARING MATERIALS, FREE OF ORGANIC MATTER.
4. ALL STRUCTURES SHALL BE OF AN APPROVED DESIGN, SET LEVEL ON 6 INCHES OF CRUSHED STONE, AND BE MADE WATERTIGHT. SEPTIC TANK TEES SHALL BE OF LENGTH REQUIRED BY TITLE 5 (THOSE SHOWN ARE FOR FOUR FOOT LIQUID DEPTH). WATERTIGHT RISERS TO WITHIN 6" OF FINAL GRADE ARE REQUIRED ON ALL TANK ACCESS PORTS WHEN COVER EXCEEDS 9".
5. ALL GRAVITY PIPING SHALL BE 4" AND LAID TRUE TO LINE AND GRADE WITH SECURE WATERTIGHT JOINTS AND BE BEDDED AND BACKFILLED AS REQUIRED BY MANUFACTURER.
   A. THE BUILDING SEWER SHALL BE SCHEDULE 40 PVC, CAST OR DUCTILE IRON, OR AN APPROVED EQUAL.
   B. SOLID AND PERFORATED PIPES UNDER PAVEMENT SHALL BE SCHEDULE 40 PVC, OR THE APPROVED EQUIVALENT.
   C. DISTRIBUTION LINES SHALL BE SCHEDULE 40 PVC/ABS, SDR 35 PVC, OR HDPE-ASTM D 3034.
6. GRAVITY LINES SHALL HAVE THE FOLLOWING MINIMUM SLOPES:
   A. BUILDING TO SEPTIC TANK: 0.02 FT/FT.
   B. SEPTIC TANK TO DISTRIBUTION BOX 0.01 FT/FT.
   C. DISTRIBUTION BOX TO LINES 0.005 FT/FT.
7. DISTRIBUTION BOX OUTLETS SHALL BE LEVEL FOR THE FIRST TWO FEET AND AN INLET TEE CUT OFF ONE INCH ABOVE OUTLETS SHALL BE INSTALLED IF INLET PIPE EXCEEDS 0.08 FT/FT OR IF PIPE IS A FORCE MAIN.
8. D-BOX SHALL BE WITHIN 6 INCHES OF FINAL GRADE AS SHOWN ON PLAN, OR SHALL HAVE A PRECAST CONCRETE RISER FURNISHED BY D-BOX MANUFACTURER. PUDDLE 9" WIDE MORTAR RING 3 INCHES ABOVE AND BELOW JOINT.
9. ALL LARGE BOULDERS, ROOTS AND OTHER UNSUITABLE MATERIALS ENCOUNTERED IN EXCAVATIONS SHALL BE REMOVED.
10. ALL SURFACES SHALL BE SCARIFIED PRIOR TO THE PLACEMENT OF FILL OR STONE, TO ENHANCE INFILTRATIVE CAPABILITIES.
11. WHEN GRAVEL FILL IS REQUIRED, ALL ORGANIC MATERIALS SHALL BE REMOVED AND FILL CONFORMING TO REQUIREMENTS OF 310CMR 15.255 SHALL BE PLACED IN A MANNER TO INSURE SUPPORT AND PERCOLATION.
12. DOUBLE WASHED STONE SHALL BE DURABLE AND FREE FROM IRON, FINES AND DUST.
13. ALL BACKFILL SHALL BE CLEAN EARTHEN MATERIALS FREE OF LARGE STONES AND FROZEN MATERIALS. BACKFILL SHALL BE PLACED TO SUPPORT THE SYSTEM, INSURE PROPER RUNOFF AND BE STABILIZED TO PREVENT EROSION.
14. COVER OVER STRUCTURES AND LEACHING WORKS SHALL BE A MINIMUM OF 9 INCHES AND A MAXIMUM OF 36 INCHES.
15. ALL SYSTEM COMPONENTS SHALL BE MARKED WITH MAGNETIC MARKING TAPE, OR APPROVED EQUAL.
16. SEPTIC SYSTEM COMPONENTS TO BE STAKED BY PROFESSIONAL LAND SURVEYOR PRIOR TO CONSTRUCTION.

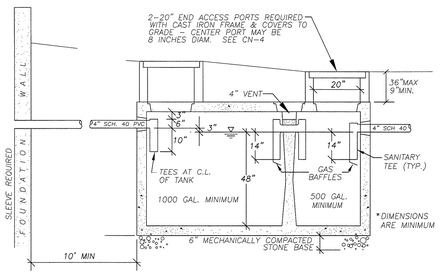


CHAMBER VENT DETAIL
N.T.S.

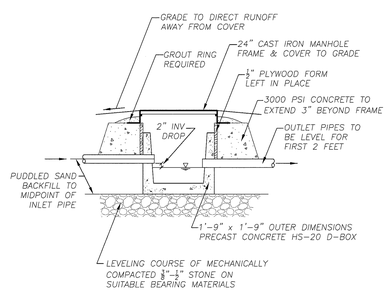


PROOF PLAN
1"=20'

4 - 28'L x 2'W x 2'D TRENCHES = 672 SF
672 SF x 0.74 GPD/SF = 497 GPD

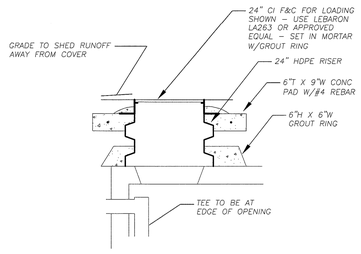


1500 GALLON TWO-COMPARTMENT SEPTIC TANK DETAIL
N.T.S.

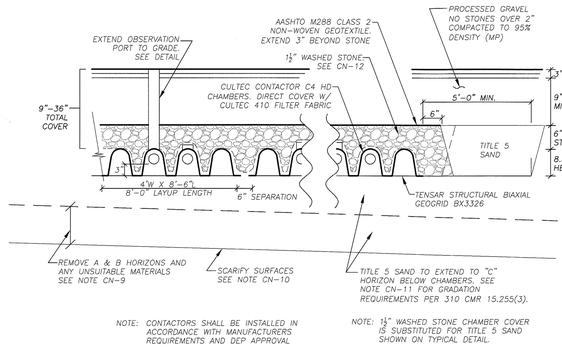


D-BOX DETAIL
N.T.S.

NOTE: ALL STRUCTURES SHALL BE FOR HS-20 LOADING.



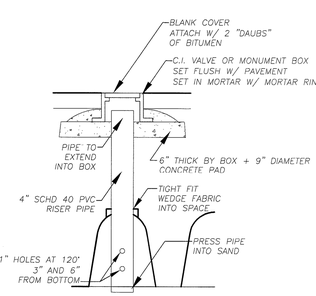
SEPTIC TANK RISER DETAIL
N.T.S.



NOTE: CONTACTORS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS REQUIREMENTS AND DEP APPROVAL

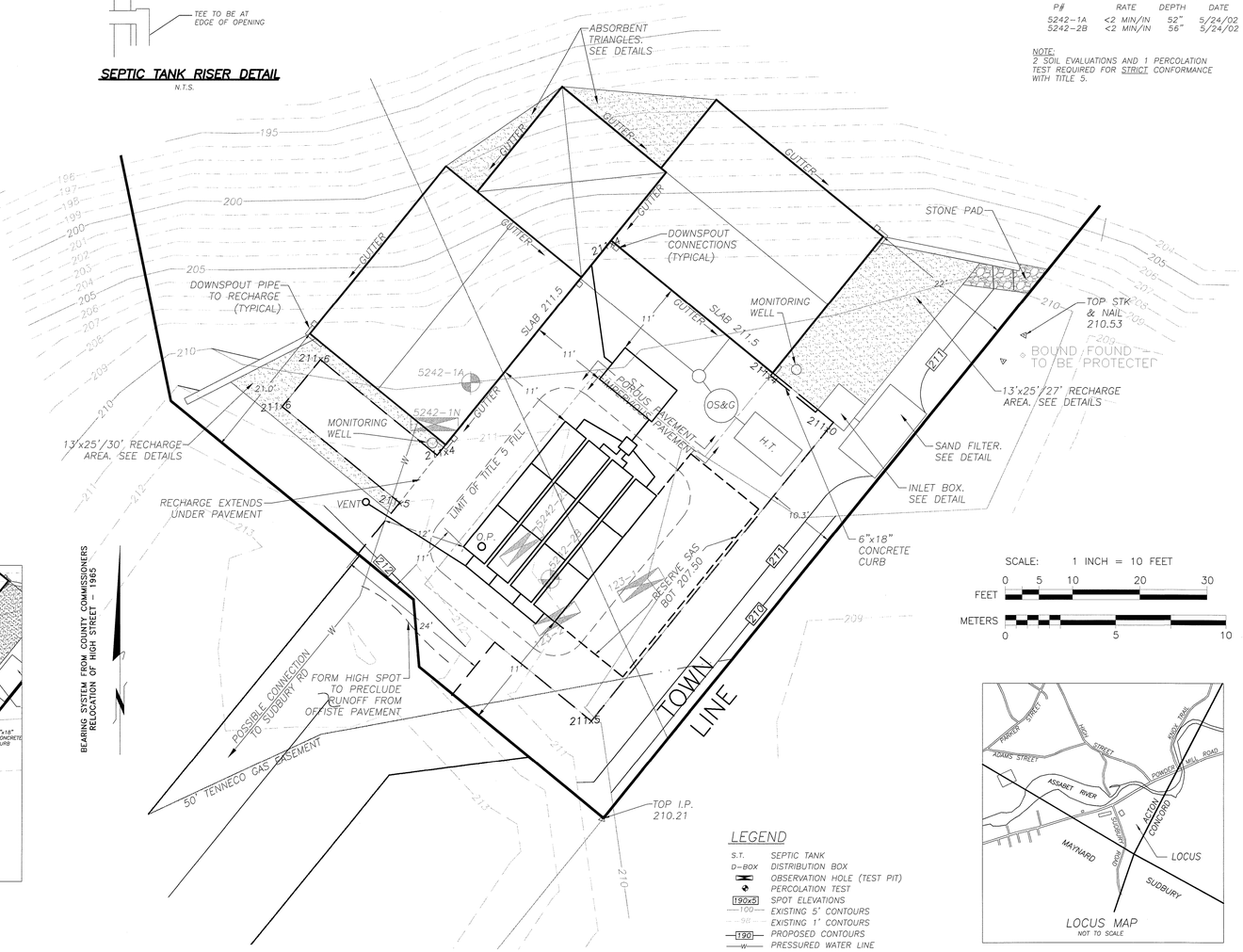
NOTE: ½" WASHED STONE CHAMBER COVER IS SUBSTITUTED FOR TITLE 5 SAND SHOWN ON TYPICAL DETAIL.

CULTEC CONTACTOR C-4 HD (HEAVY DUTY) CHAMBERS BED CROSS SECTION AND COVER DETAILS
N.T.S.



OBSERVATION PORT DETAIL
N.T.S.

NOTE:
ELEVATIONS REFER TO NGVD 1929.
2 BENCHMARKS SHALL BE ESTABLISHED AFTER AFTER CLEARING AND INITIAL SITE GRADING HAVE BEEN PERFORMED.
STARTING BENCHMARK: FIRM RM 1



SCALE: 1 INCH = 10 FEET

FEET 0 5 10 20 30
METERS 0 5 10

LEGEND

S.T.	SEPTIC TANK
D-BOX	DISTRIBUTION BOX
	OBSERVATION HOLE (TEST PIT)
	PERCOLATION TEST
190x5	SPOT ELEVATIONS
100	EXISTING 5' CONTOURS
98	EXISTING 1' CONTOURS
190	PROPOSED CONTOURS
W	PRESSURED WATER LINE

LOCUS MAP
NOT TO SCALE

SOIL TESTS

SOIL EVALUATOR:
MARK T. DONOHOE

BOARD OF HEALTH AGENT:
BRENT REAGOR

1. PERCOLATION RATES: (MIN/IN)

P#	RATE	DEPTH	DATE
5242-1A	<2 MIN/IN	52"	5/24/02
5242-2B	<2 MIN/IN	56"	5/24/02

NOTE:
2 SOIL EVALUATIONS AND 1 PERCOLATION TEST REQUIRED FOR STRICT CONFORMANCE WITH TITLE 5.

2. OBSERVATION HOLE DATA

On-site Review DEEP HOLE # 5242-1N
Date: 5/24/02 Time: AM Weather: 70'S FAIR
SURFACE
Elevation: 210.8± Slope: 2-5% Stones: NONE
Landuse: VACANT
Vegetation: GRASS/BRUSH
Landform: KAME TERRACE
Parent Material: ABLATION TILL
Remarks:

DEEP OBSERVATION HOLE LOG

Depth to	Horizon	Texture	Color	Soil Mottling	Other
0-42"	TOPSOIL FILL				AP BW
42-117"	C1	LS	2.5Y5/6	NO MOTTLES DETECTED	INDISTINCT HORIZON COARSE SAND HORIZ. BEDDING SC RND T B 20% GRAVEL

DEPTH TO:
Bedrock: NOT DETERMINED
Standing Water: NONE
Weeping Sides: NONE
Seasonal High Ground Water: >117" (201.0±)

On-site Review DEEP HOLE # 5242-2S
Date: 5/24/02 Time: AM Weather: 70'S FAIR
SURFACE
Elevation: 211.1± Slope: 2-5% Stones: NONE
Landuse: VACANT
Vegetation: GRASS/BRUSH
Landform: KAME TERRACE
Parent Material: ABLATION TILL
Remarks:

DEEP OBSERVATION HOLE LOG

Depth to	Horizon	Texture	Color	Soil Mottling	Other
0-19"	TOPSOIL FILL				AP BW
19-120"	C1	LS	10YR4/4	NO MOTTLES DETECTED	INDISTINCT HORIZON COARSE SAND HORIZ. BEDDING SC RND T B 20% GRAVEL

DEPTH TO:
Bedrock: NOT DETERMINED
Standing Water: NONE
Weeping Sides: NONE
Seasonal High Ground Water: >120" (201.1±)

On-site Review DEEP HOLE # 123-1
Date: 12/3/03 Time: AM Weather: CLEAR, COLD
SURFACE
Elevation: 210.2± Slope: 5% Stones: NONE
Landuse: VACANT COMMERCIAL
Vegetation: PIONEER GRASS/BRUSH
Landform: KAME DELTA
Parent Material: LACUSTRINE
Remarks:

DEEP OBSERVATION HOLE LOG

Depth to	Horizon	Texture	Color	Soil Mottling	Other
0-14"	FILL				LOAM/SAND
14-128"	C	C-MS	10YR5/6	NONE	STONES, COBBLES, FEW BOULDERS, 25% GRAVEL

DEPTH TO:
Bedrock: NOT DETERMINED
Standing Water: NONE
Weeping Sides: NONE
Seasonal High Ground Water: >128" (199.5±)

On-site Review DEEP HOLE # 123-2
Date: 12/3/03 Time: AM Weather: CLEAR, COLD
SURFACE
Elevation: 211.2± Slope: 5% Stones: NONE
Landuse: VACANT COMMERCIAL
Vegetation: PIONEER GRASS/BRUSH
Landform: KAME DELTA
Parent Material: LACUSTRINE
Remarks:

DEEP OBSERVATION HOLE LOG

Depth to	Horizon	Texture	Color	Soil Mottling	Other
0-16"	FILL				LOAM/SAND
16-136"	C	C-MS	10YR5/6	NONE	STONES, COBBLES, FEW BOULDERS, 25% GRAVEL

DEPTH TO:
Bedrock: NOT DETERMINED
Standing Water: NONE
Weeping Sides: NONE
Seasonal High Ground Water: >136" (199.9±)

DESIGN ELEVATIONS

TOP OF FOUNDATIONS (SLAB)	211.5±
INVERTS	
AT FOUNDATIONS	209.20
AT SEPTIC TANK INLET	208.85
AT SEPTIC TANK OUTLET	208.60
AT D-BOX INLET	208.55
AT D-BOX OUTLET	208.38
INVERT OF CHAMBERS	208.25
TOP OF CHAMBERS/BREAKOUT	208.71
BOTTOM OF CHAMBERS	208.00

DESIGN CRITERIA

1. SYSTEM IS DESIGNED TO ACCOMMODATE SANITARY SEWAGE ASSOCIATED WITH DOMESTIC USAGE CONSISTING OF PUTRESCIBLE WASTE AND FOR THE FLOWS CALCULATED.
2. SYSTEM IS NOT DESIGNED FOR THE USE OF A GARBAGE GRINDER OR FOR WATER SOFTENER BACKWATER DISCHARGE.
3. DESIGN FLOWS:
   SERVICE STATION MINIMUM FLOW = 450 GPD
4. SEPTIC TANK; 2 x FLOW REQUIRED, 1500 GALLON SINGLE COMPARTMENT TANK - MINIMUM SIZE
5. LEACHING AREA:
   A. PERCOLATION RATE USED: 2 MIN/IN
   B. SOIL CLASS: 1
   C. APPLICATION RATE: 0.74 GPD/SF
   D. AREA REQUIRED: 450 GPD / 0.74 = 608 SF
   E. AREAS PROVIDED:
      1. 12 CHAMBERS = 3 x 4 x 8 LF = 96 LF
      2. EFFECTIVE AREA PER LF = 6.7 SF
      3. EFFECTIVE AREA = 643 SF
   F. CAPACITY PROVIDED: 0.74 x 643 SF = 476 GPD
6. RESERVE AREA: 3 ROWS OF 4 CHAMBERS
   12 CHAMBERS x 8 LF = 96 LF
   96 LF x 6.7 SF/LF = 643 SF
   643 SF x 0.74 GPD/SF = 476 GPD
7. MINIMUM GROUNDWATER OFFSET PROVIDED: 6' (GWPD #3)
8. SITE IS NOT IN A NITROGEN SENSITIVE AREA.
9. VARIANCES REQUIRED FROM ACTON BOARD OF HEALTH REGULATIONS:
   1. From Regulation 16-4.2.10 to allow the use of porous pavement (a recharge facility) and the open stone recharge areas a distance less than 100 feet from the SAS. The purpose of these facilities is to negate the need for flowing runoff above or below the steep slopes at the rear of the site and to maintain existing recharge. The recharge facilities will be located above the top of the SAS.
   2. From Regulation 11-8.1 to allow a SAS with an area less than 900 square feet to be utilized.

No.	DATE	DESCRIPTION
3	9/20/11	ENGINEERING DEPARTMENT COMMENTS
2	7/19/11	BOARD OF HEALTH COMMENTS
1	6/29/11	REDESIGN FOR MODIFIED DESIGN FLOW

REVISIONS

PROPOSED SUBSURFACE SEWAGE DISPOSAL SYSTEM PLAN

40 SUDBURY RD (FORMERLY 65-71 POWDER MILL RD) ACTON, MA

PREPARED FOR:
OLD MILL DEVELOPMENT TRUST
6 PROCTOR STREET
ACTON, MA 01720

COMMONWEALTH OF MASSACHUSETTS
MARK DONOHOE CIVIL No. 27148 REGISTERED PROFESSIONAL ENGINEER

SCALE: 1"=10' DATE: MAY 16, 2011

Acton Survey & Engineering, Inc.
Since 1967
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ACTON, MA 01720
PH. (978) 263-3666
FAX (978) 635-0218

6055 B26-5/5